PART I
SCOPE OF WORK
PROJECT SPECIFIC

CONTRACT TYPE: Specific Rate of Pay

PROJECT: Computer Engineering Software Transition

THE COMPLETE SCOPE OF WORK INCLUDES THIS DOCUMENT (ATTACHED TO THE CONTRACT FOR CONSULTANT SERVICES) AND, IF REFERENCED,

PART 2
ATTACHMENTS

NOTE: PART 2, AND ATTACHMENTS 1, AND B ARE INCLUDED AS PART OF THIS DOCUMENT.

PROJECT SPECIFIC
PART I
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SECTION 1
PROJECT SPECIFIC INFORMATION

1.01 Planned Improvements.
The project will build on the Colorado Department of Transportation's (CDOT) current software, configuration, workflows and training programs to create a complete electronic project delivery system from planning through construction.

1.02 Project Goal.
The proposed goal is to build on CDOT's current software, configuration, workflows and training programs to create a complete electronic project delivery system from planning through construction. Implementation of the program will provide a complete electronic project delivery system where all CDOT's selected software packages, utilized workflows, configuration, and training work seamlessly together. At the end of FY08 the implementation plan will be 100% complete with complete interconnection of all groups and complete automation including electronic bid letting.

The goals and objectives of the project shall be further defined by CDOT upon initiation of the contract. Writing individual task orders on an as needed basis will identify all work.

1.03 Project Background.
CDOT's design and construction staff utilize roadway and computer aided drafting (CAD) software as a critical part of the production of roadway and other designs. CDOT is transitioning from two internal survey packages (CDOT PICS and CDOT COGO), three different roadway design modeling software programs and AutoDesk's AutoCAD drafting software to Bentley's System's products. CDOT is currently using Bentley's InRoads Survey, MicroStation, InRoads and ProjectWise products. The following is a list of software products that CDOT is using or interested in heading towards implementing. More may be added to this list depending on recommendations by CDOT or the Consultant.

- Bentley InRoads Survey
- Bentley MicroStation
- Bentley InRoads
- Bentley Redline
- Bentley Bridge (or similar package)
- Bentley Storm and Santiary (or similar package)
- Bentley Quantity Manager
- Bentley Standards Checker
- Bentley ProjectWise
- Bentley iPlot
- AASHTO Transport
- AASHTO SiteManager
- SignCAD
- AutoTrak

CDOT has been working on this transition since early 2004. To help with this transition CDOT has developed the following:

- Specialty groups: Planning, survey/ROW, roadway design, hydraulics, traffic/ITS, structures, Environmental, utilities, GIS, materials/geotechnical, construction, M&S Standards and other various CDOT standards
- Transition teams: training, ProjectWise, and communication
- Committees: Standards and Configuration, Steering

CDOT has many specialties that are to be included as part of the complete electronic project delivery system. Following is a graphic showing the estimated amount of effort that the specialty groups will require.

Along with the configuration of the Bentley software CDOT has developed custom training programs. These programs include instructor led training as well as web based self-paced tutorials. The following is a list of what has been, or is being developed: InRoads Survey Data Reduction, Roadway Drafting Using MicroStation, Roadway Design Using InRoads, Redline for Construction Documentation, InRoads Geometry Fundamentals, InRoads Geometry for Right Of Way, Right Of Way Plans Development using MicroStation, and Intersection/Interchange Modeling using InRoads.

1.04 Project Costs. The cost of this project is estimated at $7,000,000.

1.05 Work Duration. The time period for the project is estimated to be 5 years.

1.06 Consultant Responsibility.

Consultant responsibility: The Consultant responsibility for the contract shall consist of building on CDOT's current software, configuration, workflows and training programs to create a complete project delivery system from planning through construction as outlined in Section 7 (Work Activities Assignments) including, but not limited to, any portion of the following phase work:

Project Initiation and Continuing Requirements

- Initial Project Meeting
- Project Schedule
- Project Management
- Evaluation of Software and Hardware

Project Development

- Communication
- Project Review Team
- Planning
- Configuration
- Workflows
- Custom Extensions
- MicroStation/InRoads Subject Matter Expert
- Transportation Subject Matter Expert(s):
- Support
- Develop Customized Training
- Provide Customized Training
- Designing and Developing Self-Paced Tutorials
- CAD Drafting

1.07 Work Product. The Consultant work products are:

- Reports
- Schedules
- Meeting Minutes
- Configuration Releases
- Workflow Reports and Diagrams
- Specialty Group Manuals (Drafting, Hydraulics, ROW, Bridge, etc)
- Training Manuals
- Training Courses
- CAD drawings
- Custom Extensions
- Self-Paced Tutorials
- Prepare and Conduct Demonstrations

Detailed work product requirements are described in the following sections and in Part 2.

1.08 Work Product Completion. All submittals must be accepted by the CDOT Contract Administrator or his/her designee.

1.09 Additional Project Information. Additional information may be found in the Colorado Department of Transportation Project Development System Assessment as well as the following documents:

- Current Edition:
  CDOT Drafting Manual (available upon completion, draft copies may be available upon request)
  CDOT Training Manuals (InRoads Survey Data Reduction, Roadway Drafting Using, MicroStation, Roadway Design Using InRoads, InRoads Geometry: The following will be available upon completion, draft copies may be available upon request for Redline for Construction Documentation, InRoads Geometry Fundamentals, InRoads Geometry for Right Of Way, Right Of Way Plans Development using MicroStation and Intersection/Interchange modeling using InRoads.
  CDOT Web Tutorials (InRoads Survey Data Reduction, Roadway Drafting Using, MicroStation, Roadway Design Using InRoads, InRoads Geometry: The following will be available upon completion, draft copies may be available upon request for Redline for Construction Documentation, InRoads Geometry Fundamentals, InRoads Geometry for Right Of Way, Right Of Way Plans Development using MicroStation, and Intersection/Interchange modeling using InRoads.
  CDOT Workflows
  Other CDOT materials found on the Websites:
  http://www.dot.state.co.us/DesignSupport/
  http://www.dot.state.co.us/ROW_Manual/
  http://www.dot.state.co.us/Survey_Manual/

1.10 Scope of Work Organization. Project Scopes of Work are divided into two parts, a Project Specific section (Part 1) and General Task Descriptions (Part 2). Part 1 and 2 are attached to the contract.

This draft scope of work has been carefully reviewed by the Department and reflects a plan of approach based on the known goals. One factor determining the selection of a Consultant is the ability of that Consultant to

analyze the project goals, evaluate the work elements, and formulate a work plan. This process may produce new approaches or modification to the project work elements. Because of that, all Consultants should be aware that the Final Scope of Work for a project will be produced with input from the selected Consultant.

SECTION 2
PROJECT MANAGEMENT AND COORDINATION

2.01 CDOT Contacts. The Contract Administrator for this project is: Mitch Kumar, Project Development Manager.

Active day-to-day administration of the contract will be delegated to:

Name:	Helen Peiker, P.E.
Title:	Design/CAD Manager
Address:	4201 East Arkansas, 4th Floor
	Denver, CO 80222
Telephone:	303-512-5204
Fax:	303-757-9868

2.02 Project Coordination. Coordination will be required with the following:

- CDOT Personnel
- CDOT Consultants
- Bentley Systems Inc.
- Other Agencies as identified in the Scoping Process

SECTION 3
PROJECT DESCRIPTION

3.01 Background. This project is a Statewide effort and will be managed out of CDOT's headquarters office located at 4201 East Arkansas Ave., 4th Floor, Denver, CO 80222.

3.02 Project Limits. The limits of this project shall be throughout the state of Colorado.

3.03 Work Elements. The scope of work will provide for:

Project Initiation and Continuing Requirements
- Initial Project Meeting
- Project Schedule
- Project Management
- Evaluation of Software and Hardware

Project Development
- Communication
- Project Review Team
- Planning
- Configuration
- Workflows
- Custom Extensions
- MicroStation/InRoads Subject Matter Expert
- Transportation Subject Matter Expert(s)
- Support
- Develop Customized Training
- Deliver Customized Training
- Designing and Developing Self Paced Tutorials
- CAD Drafting

SECTION 4
KNOWN EXISTING CONFIGURATION, WORKFLOWS, MANUALS, and WEB BASED TUTORIALS

4.01 Configuration. Version 2.02 or latest version is available on CDOT web site.

4.02 Workflows. Available from CDOT Project Manager upon Request.

4.03 Manuals.

- InRoads Survey Data Reduction
- Roadway Drafting Using, MicroStation
- Roadway Design Using InRoads\
- The following will be available upon completion; draft copies may be available upon request
  - Redline for Construction Documentation
  - InRoads Geometry Fundamentals
  - InRoads Geometry for Right of Way
  - Right of Way Plans Development using MicroStation
  - Intersection/Interchange modeling using InRoads
  - Drafting Manual
- Other CDOT materials found on the Websites:
  http://www.dot.state.co.us/DesignSupport/
  http://www.dot.state.co.us/ROW_Manual/
  http://www.dot.state.co.us/Survey_Manual/

4.04 Web Based Tutorials.

- InRoads Survey Data Reduction
- Roadway Drafting Using, MicroStation
- Roadway Design Using InRoads
- The following will be available upon completion; draft copies may be available upon request
  - Redline for Construction Documentation
  - InRoads Geometry Fundamentals
  - InRoads Geometry for Right of Way
  - Right of Way Plans Development using MicroStation
  - Intersection/Interchange modeling using InRoads

SECTION 5
ITEMS TO BE FURNISHED BY CDOT

5.01 CDOT Manuals, Specifications, Standards, etc. Electronic files of applicable standards and all CDOT forms specified in this document.

5.02 Project Specific Items:

- Configuration
- Workflows
- Manuals
  - Drafting Manual (will be available upon completion; draft copies may be available upon request)
  - Other CDOT materials found on the Websites:
    http://www.dot.state.co.us/DesignSupport/
    http://www.dot.state.co.us/ROW_Manual/
    http://www.dot.state.co.us/Survey_Manual/
- Training Manuals (InRoads Survey Data Reduction, Roadway Drafting Using, MicroStation, Roadway Design Using InRoads. The following will be available upon completion; draft copies may be available upon request Redline for Construction Documentation, InRoads Geometry Fundamentals, InRoads Geometry for Right Of Way, Right Of Way Plans Development using MicroStation, Intersection/Interchange modeling using InRoads)
- Web Based Training Tutorials (InRoads Survey Data Reduction, Roadway Drafting Using, MicroStation, Roadway Design Using InRoads. The following will be available upon completion; draft copies may be available upon request Redline for Construction Documentation, InRoads Geometry Fundamentals, InRoads Geometry for Right Of Way, Right Of Way Plans Development using MicroStation, Intersection/Interchange modeling using InRoads)

SECTION 6
GENERAL INFORMATION

Authorization to Proceed. Work shall not commence until the written Notice-to-Proceed is issued by the State and received by the Consultant. In addition, prior to work commencing, the Consultant must certify in writing that the work will be completed by the time specified in the task order(s) issued. Payment to the Consultant may be withheld if work is not completed within the allotted time.

Where work performed is unsatisfactory, CDOT shall notify the Consultant in writing that work shall cease and all subsequent payments withheld until the problem(s) is resolved to the satisfaction of CDOT. Once satisfied and resolved a written authorization to continue with the work effort shall be provided to the Consultant by CDOT.

6.01 Project Coordination. The routine working contact will be between the CDOT Project Manager (CDOT/PM) and the Consultant Project Manager (C/PM) as defined in Attachment B. Each Project Manager will provide the other with:

a. Written synopses or copy of their respective contacts (both by telephone and in person) with others.
b. Copies of pertinent written communications.

6.02 Routine Reporting and Billing. The Consultant will provide the following on a routine basis:

a. Coordination of all contract activities by the C/PM.
b. The periodic reports, schedules and billings required by CDOT Procedural Directive 400.2 (Monitoring Consultant Contracts) and identified in this document.
c. Minutes of Meetings: The minutes will be completed and will be provided to the CDOT/PM within five (5) working days after the meeting. When a definable task is discussed during a meeting, the minutes will identify the "Action Item", the agency responsible for accomplishing it, and the proposed completion date.
d. Agendas of Meetings: The agendas for meetings will be completed and will be provided to the CDOT/PM five (5) working days prior to the meeting.
e. In general, all reports and submittals must be accepted by CDOT prior to their content being utilized in follow-up work effort.

6.03 Personnel Qualifications. The Consultant Project Manager (C/PM) must be approved by the CDOT Contract Administrator. Certain tasks will require Licensed Professional Engineers (PE) or Professional Land Surveyors (PLS) who are licensed with the Colorado State Board of Registration for Professional Engineers and Land Surveyors. MicroStation, InRoads and others software packages as may be identified in the scope of work in this contract are the tools selected by CDOT to develop legal contract documents signed and sealed by Professional Engineers and Land Surveyors. The Consultant will need to have Professional Engineers and Land Surveyors available to assist with configuring the software, developing workflows, training materials, provide training and support, evaluating software packages (structural, hydraulic, etc.), evaluating interoperability between software products, and configuration and workflows developed, test MicroStation Development Language (MDL) routines, develop and test CDOT specific design decisions (for example: super elevation, sight distance), interpret and incorporate CDOT manuals and standards (for example: design, materials, hydraulic, M&S, survey, right-of-way, structural and others identified in this document) and other tasks as identified. Professionals will be needed for the following specialty areas: Roadway Design, Traffic/ITS, Hydraulics, Survey, Right-of-Way, Utilities, Construction, Structures, IT, Materials/Geotechnical, and Materials.

6.04 CDOT Computer/Software Information. The primary hardware used by CDOT is Intel Pentium workstations. The operating systems are Windows XP Profession and Windows XP Server 2003. Most workstations are connected to the CDOT wide area network. The primary types of software are:

Earthwork:	Bentley InRoads Version 08.05.00.00 Service Pack 1
Drafting-Auto:	MicroStation Version 08.05.01.25
Survey:	TMOSS (A CDOT developed numeric coding system for the automation and standardization of survey and aerial data CDOT Translator (A CDOT developed application that translates PICS TMOSS codes to the InRoads TMOSS codes.)
Geometry:	Bentley InRoads Version 08.05.00.00 Service Pack 1
Bridge:	AASHTO Pointis, Opis and Virtis, CDOT Bridge Geometry, MathCAD and numerous other design or design check applications
Estimating:	Trns*port (Bid Analysis and Management Systems), an AASHTO-sponsored software
Specifications:	Microsoft Word
Traffic:	Highway capacity software (HCS) Passer 11-90 Quick Response system (QRS) II SignCAD AutoTrak
Hydraulics:	Hydrologic Engineering Center's River Analysis System (HEC-RAS) and Bentley's StormCAD, FlowMaster and Culvert Master
Pavement Design:	DARWin (AASHTO)
Project Management	Bentley ProjectWise, MicroSoft Project
Construction:	Site Manager, an AASHTOsponsored software

A comprehensive list of Project Development software used by CDOT s included in Attachment C.

Following is a list of software products that CDOT is interested in heading towards implementing. More may be added to this list depending on recommendations by CDOT or the Consultant.

Bentley Redline
Bentley Quantity Manager

Bentley Standards Checker
Bentley iPlot
Bentley ProjectWise
SAP Enterprise Resource Planning (ERP)

6.05 Computer Software Compatibility. The Consultant is responsible for insuring that any proposed solutions are compatible with existing Project Development Systems software.

6.06 Project Design Data and Standards. Attachment A is a list of technical references applicable to CDOT work. The Consultant is responsible for ensuring compliance with the listed references. Conflicts in criteria shall be resolved by the CDOT/PM.

SECTION 7
WORK ACTIVITY ASSIGNMENTS

This list establishes the Consultant's individual task responsibility. The Consultant shall maintain the ability to perform all work tasks which are indicated below by an 'X' mark in the Consultant column, in accordance with the forms and conditions of Part 2, and the applicable CDOT standards. Selected work tasks shall be assigned only after coordination and consultation with CDOT. The Consultant is also responsible for coordinating the required work schedule for those tasks accomplished by CDOT and other agencies.

ACTIVITIES
(See Part 2 for Task Descriptions)

	CDOT/OTHER	CONSULTANT
A. Project Initiation and Continuing Requirements:		
1. Initial Project Meeting	☒	☒
2. Project Schedule		
a. Update Implementation Plan.	☒	☒
b. Update 10-year Long Range Plan	☒	☒
3. Project Management		
a. Oversee Implementation of the CEST Program	☒	☒
b. Workflow and Configuration Consistency	☐	☒
c. Workflow and Configuration Implementation	☒	☒
d. Organize and Sequence Implementation	☒	☒
e. Organize and maintain communications	☒	☒
f. Schedule and Coordinate Training Courses	☒	☒
g. Schedule and Coordinate Web Tutorials	☒	☒
h. Schedule and Coordinate Support	☐	☒
i Schedule and Coordinate Meetings.	☒	☒
j. Coordinate with Specialty Teams	☒	☒
k. Manage Consultant Team	☐	☒
l. Coordinate Reports, Workflows, and Configuration	☐	☒
m. Manage Quality Control	☐	☒
n. Attend Meetings	☒	☒
o. Coordinate On-site Support Visits	☐	☒
4. Evaluation of Software and Hardware	☒	☒
B. Project Development:		
1. Communication		
a. Contact List	☐	☒
b. General Meetings		
(1) Weekly Group Meetings	☒	☒
(2) Monthly Meetings	☒	☒
(3) Specialty Group Meetings	☒	☒
c. Communication Aids	☐	☐
(1) Graphics Support	☐	☒
(2) Web-site	☒	☒
(3) Local Office	☐	☒
2. Planning		

a.	Develop Implementation Plane	☒	☒
b.	Develop 10-year Long Range Plan	☒	☒
3.	Configuration		
a.	Develop CDOT's configuration	☐	☒
b.	Integrate Specialty Groups Needs and Configuration	☒	☒
c.	Integrate Software Programs	☒	☒
d.	Document all Configuration Decisions	☐	☒
e.	Code and Quality Control check Configuration	☐	☒
f.	Support Configuration and make fixes	☐	☒
g.	Update Configuration	☐	☒
h.	Coordinate and Work With IT department	☒	☒
4.	Workflows		
a.	Provide Alternatives, Options and Workflows	☒	☒
b.	Provide Subject Matter Expert	☐	☒
c.	Integrate Specialty Groups Needs and Workflows	☒	☒
d.	Document Workflows	☐	☒
e.	Update Workflows	☐	☒
f.	Integrate Software Programs	☐	☒
5.	Custom Extensions		
a.	Design and Develop Custom Extensions	☐	☒
b.	Implementation of Custom Extensions	☒	☒
c.	Develop Functional Specification	☒	☒
d.	Prepare Technical Design Specification	☐	☒
e.	Review Technical Design Specification	☒	☒
f.	Code and Quality Control Check Custom Extension	☐	☒
g.	Support Implementation of Custom Extension	☒	☒
6.	MicroStation/InRoads Subject Matter Expert		
a.	Quality Assurance and Testing	☒	☒
b.	Test Configuration	☒	☒
c.	Support Configuration	☒	☒
d.	Identify Problems	☒	☒
e.	Assist with Specialized Software Requirements	☒	☒
f.	Assist with Product Selection	☒	☒
g.	Provide Training Recommendations	☒	☒
h.	Assist with Setting Preferences and Standards	☒	☒
i.	Provide Support	☒	☒
j.	Prepare Plan Sheets	☒	☒
k.	Prepare and Conduct Demonstrations	☒	☒
l.	Identify Enhancements	☒	☒
m.	Prepare Web Content	☒	☒
n.	Documentation of Meetings and Problem Issues	☒	☒
o.	Coordinate and Work with IT	☒	☒
p.	Update and Assist with CAD Website	☒	☒
7.	Transportation Subject Matter Expert(s):		
a.	Provide CDOT with Specialty Expertise	☒	☒
b.	Identify Enhancements	☒	☒
c.	Assist with Developing and Setting Standards	☒	☒
d.	Provided Coordination Between Specialty Groups	☒	☒
e.	Coordination with Team Members	☒	☒
f.	Provide Training Recommendations	☒	☒

	g. Provide Support to CDOT employees	☒	☒
	h. Prepare and Conduct Demonstrations	☒	☒
	i. Assist CDOT with Training	☒	☒
	j. Assist CDOT Personnel in Specialty Areas	☒	☒
8.	Support		
	a. Provide Statewide On-Site Support	☒	☒
	b. Provide Telephone Support to CDOT personnel	☒	☒
	c. Evaluate Users Problems and Make Recommendation	☒	☒
	d. Provide Telephone Support to Consultants	☐	☒
	e. Develop Plan for Frequently Asked Questions	☐	☒
	f. Provide Software Support	☐	☒
	g. Support CDOT Staff	☒	☒
	h. Keep and maintain activity diaries	☒	☒
9.	Develop Customized Training		
	a. Prepare Training Plan	☒	☒
	b. Prepare Customized Course Outlines	☒	☒
	c. Develop Custom Course Materials	☒	☒
10.	Provide Customized Training		
	a. Develop Customized Training Manuals	☒	☒
	b. Provide Statewide Training	☐	☒
	c. Provide Classroom(s)	☐	☒
	d. Update and Maintain Registration System	☐	☒
	e. Provide Course Evaluation Survey	☐	☒
	f. Provide Instructor	☐	☒
11.	Designing and Developing Self Paced Tutorials:		
	a. Develop, Test and Implement Self Paced Web Tutorials	☒	☒
	b. Work with CDOT's IT Department	☒	☒
	c. Provide Course Evaluation Survey	☐	☒
	d. Update Tutorials	☒	☒
12.	CAD Drafting	☐	☒
	a. Drafting	☐	☒
	b. Update Drawings	☐	☒

SECTION 8
CONTRACT CONCLUSION

9.01 Supplemental Work. It is anticipated that this contract will be supplemented for:

- ☒ Fiscal Year Money Allocations
- ☒ As Funds Become Available

9.02 Contract Completion. This Contract will be satisfied upon acceptance of the following items if applicable:

- ☒ Project Schedule
- ☒ Meeting Agendas
- ☒ Meeting Minutes
- ☒ Final Implementation Plan
- ☒ Final Long Range Plan
- ☒ Final Configuration
- ☒ Final Workflows
- ☒ Final Custom Extensions
- ☒ Customized Training Plans
- ☒ All Customized Training Delivered
- ☒ All Self Paced Web Tutorials Delivered
- ☒ Evaluation Surveys
- ☒ CAD Drawings

and the completion of review of contract submittals.

PROJECT SCOPE OF WORK
ATTACHMENTS

A. References
B. Definitions
C: Project Development Systems Inventory

ATTACHMENT A
References

REFERENCES

A. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) PUBLICATIONS (using latest approved versions):

1. A Policy on Design Standards – Interstate System
2. A Policy on Geometric Design of Highways and Streets
3. Guide for Design of Pavement Structures
4. Standard Specifications for Highway Bridges
5. Guide for the Design of High Occupancy Vehicle and Public Transfer Facilities
6. Guide for Development on New Bicycle Facilities
7. Standard Specifications for Transportation Materials and Methods of Sampling and Testing – Part I, Specifications and Part II, Tests
8. Highway Design and Operational Practices Related to Highway Safety
9. Roadside Design Guide

B. COLORADO DIVISION OF HIGHWAYS PUBLICATIONS (using latest approved versions):

1. Action Plan
2. CDOT Design Guide (all volumes)
3. CDOT Bridge Design Guide
4. CDOT Bridge Detailing Manual
5. Bridge Rating Manual
6. Project Development Manual
7. Wetlands and Water Quality
8. Field Log of Structures
9. Cost Data Book
10. Drainage Design Manual
11. CDOT Quality Manual (when updated)
12. Survey Manual
13. Field Materials Manual
14. CDOT Design Guide, Computer Aided Drafting (CAD)
15. Erosion Control and Stormwater Quality Guide
16. Standard Plans, M & S Standards (also available on the internet)
17. Standard Specifications for Road and Bridge Construction and CDOT Supplemental Specifications
18. Item Description and Abbreviations (with code numbers) compiled by Construction Cost Estimates & Market Analysis Unit, CDOT (also available on the internet)
19. Right-of-Way Manual, Chapter 2, Plans and Descriptions, Procedures, and General Information
20. The State Highway Access Code
21. Utility Manual
22. TMOSS Generic Format
23. Field TMOSS Topography Coding
24. Topography Modeling Survey System User Manual
25. Interactive Graphics System Symbol Table

C. CDOT PROCEDURAL DIRECTIVES (using latest approved versions):

Number	Title
400.2	Monitoring Consultant Contracts
501.2	Cooperative Storm Drainage System
514.1	Field Inspection Review (FIR)
516.1	Final Office Review (FOR)
1304.1	Right-of-Way Plan Revisions
1601.0	Interchange Approval Process
1700.3	Plans, Specifications and Estimates (PS & E) and Authorization to Advertise for Bids under Certification Acceptance (CA)
1700.7	Plans and Specifications for Structure Plans under CA
1700.8	Plans and Specifications for Traffic Engineering Plans under Certifications Acceptance
1905.1	Preparation of Plans and Specifications for Structures prepared by Staff Bridge Branch

D. FEDERAL PUBLICATIONS (using latest approved versions):

1. Manual on Uniform Traffic Control Devices
2. Highway Capacity Manual
3. Urban Transportation Operations Training – Design of Urban Streets, Student Workbook
4. Reference Guide Outline – Specifications for Aerial Surveys and Mapping by Photogrammetric Methods for Highways
5. FHWA Federal-Aid Policy Guide
6. Technical Advisory T6640.8A
7. U.S. Department of Transportation Order 5610.1E
8. Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques

E. AREA:

1. Manual for Railway Engineering

ATTACHMENT B
Definitions

DEFINITIONS

AASHTO	American Association of State Highway & Transportation Officials
ADT	Average two-way 24-hour Traffic in Number of Vehicles
AREA	American Railway Engineering Association
ATSSA	American Traffic Safety Services Association
AT & SF	Atchison, Topeka &Santa Fe Railway Company
BLM	Bureau of Land Management
BNRR	Burlington Northern Railroad
CA	Contract Administrator – the CDOT Manager responsible for the satisfactory completion of the contract by the Consultant.
CAP	CDOT's Action Plan
CBC	Concrete Box Culvert
CDOT	Colorado Department of Transportation
CDOT/PE	Colorado Department of Transportation Project Manager – the CDOT Engineer responsible for the day to day direction and coordination of the CDOT/Consultant design effort.
CDOT/STR	Colorado Department of Transportation Structure Reviewer – the CDOT Engineer responsible for reviewing and coordinating major structural design.
CEA	Council on Environmental Quality
CEST	Computer Engineering Software Transition
COG	Council of Governments
COGO	Coordinate Geometry Output
CONSULTANT	Consultant for this project
CONTRACT ADMINISTRATOR	Typically a Region Engineer or Branch Head. The CDOT employee directly responsible for the satisfactory completion of the contract by the Consultant. The contract administration is usually delegated to a CDOT Project Manager.
C/PM	Consultant Project Manager. The Consultant Engineer responsible for combining the various inputs in the process of completing the project plans and managing the Consultant's design effort.
DEIS	Draft Environmental Impact Statement
DHV	Future Design Hourly Volume (two way unless specified otherwise)
DOR	Region Office Review
DRCOG	Denver Regional Council of Governments
D&RGW	Denver & Rio Grande Western Railroad
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESAL	Equivalent Single Axle Load
ESE	Economic, Social and Environmental
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHPM	Federal-Aid Highway Policy Guide
FHWA	Federal Highway Administration
FIR	Field Inspection Review
FONSI	Finding of No Significant Impact
FOR	Final Office Review
GPS	Global Positioning System
MAJOR STRUCTURES	Bridges and culverts with a total length greater then hundred feet and maximum exposed height at any section of over five feet. This length is measured along the centerline of roadway for bridges and culverts, and is the horizontal distance along

	the top of wall for retaining walls. Overhead structures (sign bridges, cantilevers and butterflies extending over traffic) are also major structures.
MOSS	'Modeling of Surfaces and Strings' computer program
MPO	Metropolitan Planning Organization, Denver Regional Council of Governments, Piles Peak Area Council of Governments, Grand Junction MPO, Pueblo MPO, North Front Range Council of Governments.
NEPA	National Environment Policy Act
NGS	National Geodetic Survey
NICET	National Institute for Certification in Technology
NOAA	National Oceanic and Atmospheric Administration
PAPER-SIZES	See CDOT Computer-Aided Drafting Manual – Tables 6-13 and 8-1
PE	Professional Engineer licensed in Colorado
PM	Program Manager
PLS	Professional Land Surveyor licensed in Colorado
PRT	Project Review Team
PS & E	Plans, Specifications and Estimate
PROJECT	The work defined by this scope
ROW	Right-of-Way: A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to a highway.
ROWPR	Right-of-Way Plan Review
RTD	Regional Transportation Director
S&C	Standards and Configuration
T/E	Threatened and/or Endangered Species
Trns*port	AASHTO sponsored product for preconstruction and construction project management.
SH	State Highway Numbers
TMOSS	Terrain Modeling Survey System
TOPOGRAPHY	In the context of CDOT plans, topography normally refers to existing cultural or man-made details
UD & FCD	Urban Drainage and Flood Control Region

Note: For other definitions and terms, refer to Section 101 of the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction and the CDOT Design Guide.

ATTACHMENT C
Project Development Systems Inventory

The Project Development Systems Inventory compiled during the assessment effort is provided on the pages, which follow. This inventory contains the following information (where available) for each application:

Application-Specific Information

No.	Column Name	Instructions
1	No.	Sequential number for each row
2	Application Name (w/Version # or Age)	Name of application. For packaged software, includes the version number or numbers that are currently in use. For custom-developed software, includes the approximate year the application was originally developed. If significant upgrades have been made to the software, the years of any significant upgrades are identified.
3	Developer (Company Name or CDOT Org)	The name of the company that developed the application. If the application has been sold, identify the company currently owning and supporting the application. For in-house developed applications, identify the CDOT organization that did the development (e.g., HQ IT; Bridge Design; ROW).
4	Description	A brief description of the purpose and use of the application.
5	Primary User Orgs	The primary organizations that use the application. Primary organizations are those that input data to the application or use information provided by the application on a regular basis to make business decisions.
6	Current Status	Describes the current status of the application within CDOT.
7	Recommendation	Keep, Replace, Hold Recommendation for the application with explanations where appropriate.

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
1	AccMenu		Accident summary software	Safety and Traffic	In use	Hold
2	Acrobat	Adobe Systems Incorporated	Used to create PDF files. Document exchange between organizations.	General	In use	Keep, roll-out professional edition to all Project Delivery staff in Regions to help with document distribution.
3	ArcGIS	ESRI Inc.	ArcGIS is a family of software products that form a complete GIS built on industry standards. ArcGIS is a complete, single, integrated system for geographic data creation, management, integration, and analysis. ArcGIS consists of ArcView, ArcEditor, ArcInfo, ArcIMS, and ArcSDE.	GIS	In use	Keep
4	ArcGIS 3D Analyst	ESRI Inc.	ArcGIS 3D Analyst provides a suite of methods for interactive perspective viewing and advanced tools for three-dimensional modeling and analysis applications. It is integrated into the ArcGIS Desktop.	GIS	In use	Keep
5	ArcGIS Spatial Analyst	ESRI Inc.	ArcGIS Spatial Analyst is integrated into the ArcGIS Desktop interactive mapping environment. It allows user to perform spatial analytical tasks such as surface analysis, terrain analysis and Mmap algebra.	GIS	In use	Keep
6	ArcIMS	ESRI Inc.	Surface analysis	GIS	In use	Keep
7	ArcPress	ESRI Inc.	ArcPress for ArcGIS is a PostScript-based Raster Image Processor (RIP) for fast and high-quality printing and exporting of maps.	GIS	In use	Keep
8	ArcSDE	ESRI Inc.	ArcSDE is a gateway that facilitates managing spatial data in a database management system. ArcSDE serves spatial data to the ArcGIS Desktop (ArcView, ArcEditor, and ArcInfo) and through ArcIMS, as well as other applications and it is the key component in managing a multi-user spatial database.	GIS	In use	Keep
9	ArcView	ESRI Inc.	Terrain analysis	GIS, Safety and Traffic, All interested users	In use	Keep

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
10	Asphalt 03	CDOT Eng. Customer Support	Mmap algebra	Materials and Geotechnical	In use	Keep
11	Asphalt 98	CDOT Eng. Customer Support	QA/QC on Materials - Old specification	Materials and Geotechnical-Flexible Pavement	Phasing out	Replace as projects using older specifications completed, etc.
12	AutoCAD	AutoDesk	It is a 2D drafting and detailing and 3D design computer aided design tool. It provides native DWG compatibility, and allows for personalization or programming in order to add a third-party application to meet any specific design requirements.	General, Roadway Design, Bridge, Construction, Right of Way, Survey, Safety and Traffic	In use	Hold for short term, then Replace
13	AutoCAD - Map Guide Viewer ActiveX (Version 6.0.3.3)	AutoDesk	Used to view maps and survey plots	Survey, Right of Way	In use	Hold for short term, then Replace
14	AutoCAD - Voloview Express(Version 1.14) Purchased - 2000	AutoDesk	AutoCAD Drawing Viewer	Survey, Right of Way	In use	Hold for short term, then Replace
15	AutoCAD Sign Layout	In-house	AutoCAD sign layout interface	Safety and Traffic	Not used	Replace
16	AutoCAD Sign Tab		AutoCAD sign tabulation interface	Safety and Traffic	In use	Hold
17	AutoCAD: CAICE (Demo Version)	AutoDesk	Demo Coordinate Geometry	Survey, Right of Way	In use	Hold
18	AutoTrak	Savoy Computing Services Ltd.	Models the swept paths of all types of steered vehicles. The software runs as an extension to industry leaders AutoCAD and MicroStation.	Roadway Design	In use	Hold
19	BARS R55	C. W. Beilfuss & Assoc., Inc.	Rates various bridge types.	Bridge	Phasing out	Replace
20	BBRW v. 1.1		Operates the Bending Beam Rheometer	Materials and Geotechnical-Bituminous Lab	In use	Keep
21	BDS-California Frame (see Imbsen BDS)	Imbsen & Assoc.	Bridge design system. Orthogonal analysis system	Bridge	Not used	Replace
22	Bituminous (Access program)			Materials and Geotechnical	Phasing out	Hold

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
23	BOSS RMS	Boss International	BOSS RMS (River Modeling System) utilizes the power of AutoCAD for computing water surface profiles for modeling bridges, bridge scour, culverts, weirs, spillways, levees, floodway delineation, floodplain reclamation, stream diversions, channel improvements, and split flows.	Hydraulics	Phasing out	Hold pending decision on AutoCAD.
24	BRASS (Bridge Rating and Analysis of Structural Systems)	WYDOT	Design and analysis of load capacity of highway bridges. Involved in the BRASS programs are BRASS-GIRDER, BRASS-PIER, BRASS-TRUSS, BRASS-CULVERT, BRASS-SPLICE, BRASS-PAD, BRASS-SCREED, BRASS-POLE, and BRASS-DIST	Bridge	Phasing out	Replace
25	Bridge Geometry	CDOT Eng. Customer Support	Bridge geometry	Bridge	Uncertain status	Replace
26	Caisson	CDOT Eng. Customer Support	Analysis and Design of Reinforced Concrete Pier Foundations.	Bridge	In use	Hold
27	CalFrame	CalTrans	Designs reinforced concrete and post-tensioned bridges	Bridge	Uncertain status	Replace
28	Camera Chameleon	Largan Group	Camera Software	ITS	Uncertain status	Hold
29	CAPWAP	Pile Dynamics, Inc	Case pile wave analysis as a series of segments, and calculates the soil response. Results from this analysis include the total capacity and its distribution along the shaft and at the toe, damping factors and quakes.	Materials and Geotechnical	In use	Keep
30	Cbear	Kansas University Transportation Center	Cbear analyses the bearing capacity of shallow foundations. It can analyze strip, rectangular, and square footings. It also considers the effects of embedment, inclined and eccentric loads, sloping ground surface, and surcharge.	Materials and Geotechnical-Soils Lab and Geology Unit	Not used	Replace, apparently can be de-commissioned.
31	Cframe		Designs reinforced concrete and post-tensioned bridges and frames	Bridge	Not used	Replace, apparently can be de-commissioned.

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
32	COGO	CDOT Eng. Customer Support	Coordinate geometry, parcels, deeds, subdivision plats, legal descriptions, General Land Office Plats, Bureau of Land Management Plats, survey alignments, stations/ offsets, survey field notes (CDOT program).	Survey, ROW, Bridge, Hydraulics, General	In use	Replace with off the shelf package.
33	COGO DOS (Version 5.03) 1991	CDOT Eng. Customer Support	Older version of CDOT COGO still in use (CDOT program)	Roadway Design, Survey, Right of Way, Bridge, Hydraulics, General	In use	Replace with off the shelf package.
34	Colorado Travel Map Application	In-house CDOT GIS	ArcIMS application. A simple map interface.	Public	In use	Keep
35	COM624	FHWA	Analyzes lateral loads on Caissons (Freeware).	Bridge	In use	Hold
36	COM624P	US Department of Transportation	COM624P is used for the analysis of stresses and deflections of piles or drilled shafts under lateral loads. It is based on the widely used p-y curve method and solves equations giving pile deflection, rotation, bending moment and shear using iterative procedures taking account of the non-linear response of soil.	Materials and Geotechnical-Soils Lab and Geology Unit	Uncertain status	Hold
37	Concrete 03	CDOT Eng. Customer Support	QA/QC on Materials	Materials and Geotechnical	In use	Keep
38	CONSPAN LA	Leap Software, Inc.	A comprehensive program for the AASHTO LFD and LRFD design and analysis of simple-span and multiple-span bridges, constructed with prestressed precast concrete beams, in U.S. and metric units. (LFD and LRFD).	Bridge	In use	Hold
39	CONSPLICE PT	Leap Software, Inc.	Design of prestress segmental girders. LRFD and AASHTO Standard Design and Analysis of Spliced Prestressed/Precast Bridge Girders and CIP Concrete Slabs.	Bridge	In use	Hold
40	Contract Mgt System (CMS)	Booz / Allen / Hamilton Consultant Company		Construction	In use	Replace with off the shelf package; Consolidate this functionality with MS Access databases maintained by Regions.
41	Core			Materials and Geotechnical	Uncertain status	Hold

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
42	Corridor Projects Web	In-house CDOT GIS	Implemented using ArcIMS. Corridor (longer stretch of road) planning. Has a regional focus as compared to the central office focus.	GIS, Roadway Design, Survey, Right of Way, Environmental	In use	Keep
43	CORSIM	McTrans Center	Corridor simulation software	Safety and Traffic	In use	Hold
44	CRSP	School of Mine	Rockfall simulation	Materials and Geotechnical	In use	Keep
45	CSHTWAL	US Army Engineer Waterways	Anchored or cantilever sheet pile retaining wall analysis	Materials and Geotechnical-Soils Lab and Geology Unit	Not used	Replace, apparently can be de-commissioned.
46	CUHP	Urban Drainage and Flood control District	Colorado Urban Hydrograph Procedure.	Hydraulics	Phasing out	Hold
47	Cycle		Operates the United Compression Machine, north	Materials and Geotechnical-Flexible Pavement	In use	Keep
48	Cylinder			Materials and Geotechnical	Uncertain status	Hold
49	Traffic Dbase		Database program	Safety and Traffic	Not used	Replace
50	Deed Plotter (Version 4.14) (2001)	Greenbrier Graphics, LLC	Legal description applications, checking, computations, errors, parcels, deeds, closures	Survey, Right of Way	In use	Keep
51	Density	CDOT, Metro Labs	Documents moisture density curves (AASHTO T99 & AASHTO T180)	Materials and Geotechnical	Phasing out	Replace, apparently can be de-commissioned.
52	Density v. 2.02		Documents moisture density curves (AASHTO T99 & AASHTO T180)	Materials and Geotechnical-Concrete & Physical Properties Lab and Soils Lab	In use	Keep
53	DESCUS1	Optimate, Inc. (Production Software, Inc.)	Curved Box girder design. Analysis, rating, and partial design of a horizontally curved bridge composed of flanged steel sections which act either compositely or noncompositely with a concrete deck. The program can be run using either Working Stress Design (WSD) method or Load Factor Design (LFD) method.	Bridge	In use	Replace

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
54	DESCUS2	Optimate, Inc. (Production Software, Inc.)	Curved Box girder design. Analysis and rating of a horizontally curved bridge composed of steel box sections which act either compositely or non-compositely with a concrete deck. The program can use either the Working Stress Design (WSD) method or the Load Factor Design method.	Bridge	In use	Replace
55	Digital Media Readers		Reads Digital Photo Cards	Safety and Traffic	In use	Hold
56	Draftsman Plus (Purchased 1998)		Add-in program to AutoCAD. Conversion of raster to vector images for Right of Way plans	Survey, Right of Way	In use	Hold, need to re-assess based on AutoCAD decision.
57	Draftsman Plus 32	Arbor Image Corporation	Raster to vector conversion and overlay plus OCR program	Safety and Traffic	Not used	Replace
58	DragnPlt 32 (Version 1.0.0)	CDOT Region Staff	Add-in to AutoCAD. Used for printing through Plot files	Survey, Right of Way	In use	Hold, need to re-assess based on AutoCAD decision.
59	DRE	Wiesley Associates	Software program for certified Drug Recognition Experts (DRE). The program tracks DRE evaluations and provides statistical analysis of the results of those evaluations.	Safety and Traffic	Uncertain status	Hold
60	Driven 1.0	Geotechnical Engineering Institute, FHWA	Vertical static pile capacity analysis	Materials and Geotechnical-Soils Lab and Geology Unit	Uncertain status	Hold
61	dROADS	Deighton Associates Ltd.	Pavement management analysis	Materials and Geotechnical-Pavement Management	In use	Keep and upgrade to newest available release.
62	Dshear	GeoComp Corporation	Works with data from both direct and residual shear tests.	Materials and Geotechnical	In use	Keep
63	DSR 5.05	Bohlin Instruments	Operates the Dynamic Shear Rheometer	Materials and Geotechnical - Bituminous Lab	Not used	Hold, confirm if still needed and Replace if appropriate it.
64	DTD - MAPS2	CDOT	ArcView GIS Application (CDOT/DTD program)	Survey, Right of Way	In use	Keep
65	dTIMS	Deighton Associates Ltd.	Pavement management analysis	Materials and Geotechnical - Pavement Management	In use	Keep and upgrade to newest available release.
66	Electronic Accident Reporting System (EARS)		Queries Department of Revenue (DOR) databases to display the accident reports.	Safety and Traffic	In use	Hold
67	Ezcycle		Operates the United Compression Machine, south	Materials and Geotechnical-Flexible Pavement	In use	Keep

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
68	FARS		Fatal accident reporting system	Safety and Traffic	In use	Hold
69	FATT	CDOT	PES/LAS to SiteManager	Construction	In use	Hold, may require modification as part of transition to Oracle.
70	FIDO 2		Distributes reports to Region Labs	Materials and Geotechnical-Flexible Pavement, Bituminous Lab, Concrete & Physical Properties Lab, Soils Lab	Not used	Replace, apparently can be de-commissioned.
71	FileNet	FileNet	Document management System. Scanning and Right of Way plan archive, locating, viewing, printing, and email of ROW plans, maps, deeds, documents, bridge and construction maps and as-built drawings	Survey, Right of Way	In use	Hold, pending decision on enterprise document management system.
72	Fiscal Reports	CDOT In-house: Mariusz Dewicki and Yamal Rima	Calculates and displays status of budgets, encumbrances and expenditures over multiple years	Project Management	In use	Replace as part of new ERP package.
73	Florida FB-Pier	Bridge Software Institute, University of Florida	It is a nonlinear finite element analysis program designed for analyzing bridge pier structures composed of nonlinear pier columns and cap supported on a linear pile cap and nonlinear piles/shafts with nonlinear soil.	Bridge	In use	Hold
74	French Excel			Materials and Geotechnical	In use	Keep
75	FRESIM	McTrans Center	Freeway simulation software	Safety and Traffic	In use	Hold
76	FWD (Falling Weight Deflectometer)	Dynatest, Inc.	Deflection data analysis	Materials and Geotechnical-Deflection Lab	In use	Keep
77	Gauges	Humboldt	Calibration of moisture density gauges	Materials and Geotechnical-Nuclear Lab	In use	Keep
78	Geodimeter total stations	Trimble		Survey, Right of Way	Uncertain status	Keep, need to assess impact of PICS and COGO migrations.
79	Georgia Beam	CDOT Eng. Customer Support	Continuous beam analysis of steel and concrete bridges.	Bridge	Phasing out	Replace
80	Geotest		Collects shear data from 2 load cells. Data transferred Excel.	Materials and Geotechnical-Soils Lab, Materials	In use	Keep

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
81	GMM (Version 3.0) (1998)	University of Maine	BLM cadastral software, Public Land Survey System coordinate database (Bureau of Land Management program)	Survey, Right of Way	Uncertain status	Hold
82	Go Sheet	In-house	Generates a comprehensive report showing current, upcoming and future bid lettings. Includes descriptive information such as contact names. Published on Web.	Construction, Project Management	In use	Keep
83	Goldnail v. 3.11	Golder Associates	Soil nail wall design	Materials and Geotechnical-Geology Lab	In use	Keep
84	GPS - Data Transfer (Version 1.07) 1990	Trimble	GPS data files downloading/uploading (Trimble program)	Survey, Right of Way	In use	Keep, need to assess impact of PICS and COGO migrations.
85	GPS - GPLoad (Version 2.75) 1990	Trimble	GPS data files downloading/uploading (Trimble program)	Survey, Right of Way	In use	Keep, need to assess impact of PICS and COGO migrations.
86	GPS - GPPlan 1990	Trimble	GPS planning, satellite almanacs, sky plots (Trimble program)	Survey, Right of Way	In use	Keep
87	GPS - GPSurvey (Version 2.35) 1990	Trimble	Old GPS processing, Control networks, GPS planning, Static networks, Fast Static networks (Trimble program)	Survey, Right of Way	In use	Keep, need to assess impact of PICS and COGO migrations.
88	GRLWEAP	GRL Engineers, Inc.	Wave equation analysis of pile driving	Materials and Geotechnical-Soils Lab	In use	Keep
89	GTGS	EtaNet	Report writing, geology logs	Materials and Geotechnical-Soils Lab and Geology Unit	In use	Hold
90	Haestad – Culvert Master	Haestad Methods	Solves Culvert Hydraulics Problems	Hydraulics	In use	Hold
91	Haestad – Flow Master	Haestad Methods	Program for the design and analysis of pipes, ditches, open channels, weirs, orifices, and inlets.	Hydraulics	In use	Hold
92	Haestad – HEC-Pack	Haestad Methods	Performs flood hydrology calculations. HEC-Pack consists of a number of modules like HEC-1, HEC-RAS, HEC-GIS and HEC-HMS.	Hydraulics	In use	Hold
93	Haestad – Pond Pack	Haestad Methods	PondPack analyzes pre- and post- development hydrology, sizes ponds, develops outlet rating curves with tailwater effects, accounts for pond infiltration, calculates pond detention times, and analyzes channels.	Hydraulics	In use	Hold

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
94	Haestad Storm CAD	Haestad Methods	Storm sewer design and analysis from rainfall to outlet	Hydraulics	In use	Hold
95	Hamburg (Quattro Pro program)			Materials and Geotechnical	In use	Replace with newer Excel based version.
96	HCS	McTrans Center	Highway capacity software	Safety and Traffic	In use	Hold
97	HEC-2	Kansas University Transportation Center	Calculates water surface profiles and floodplain boundaries for steady, gradually varied flow in natural and man-made channels.	Hydraulics	Phasing out	Hold
98	HEC-RAS	Haestad Methods	Determines water surface elevations throughout a river network and analyzing bridges and culverts.	Hydraulics	Phasing out	Hold
99	HiStar	Nu-Metrics	Traffic counter software. HI-STAR® portable traffic analyzer uses patented Vehicle Magnetic Imaging (VMI) technology to provide with the essential information needed for accurate traffic analysis and highway management. It records the volume, speed, and length classification of vehicles and the road surface temperature, wet/dry surface condition, and roadway occupancy.	Safety and Traffic	In use	Hold
100	HY-8	FHWA Hydraulics Engineering		Hydraulics	Uncertain status	Hold
101	Hydra flow Hydrographs	Water Resources Consulting Services	Fast and easy drainage studies.	Hydraulics	Uncertain status	Hold
102	IMBSEN BDS	Imbsen & Assoc.	Imbsen's version of California frame. Analyzes or designs orthogonal bridge frames.	Bridge	Uncertain status	Hold for short term, then Replace
103	InRoads	Bentley		Roadway Design	In use	Keep as primary Roadway Design software tool.
104	Inverse 3D (Version 1.0) 1996		Geographic and Stateplane coordinate inverses from grid to ground distances	Survey, Right of Way	Uncertain status	Keep, need to assess impact of PICS and COGO migrations.
105	KEA! X version 6.0	Attachmate Corporation	Used as an interface for users to input and calculation of Cost per Test System	Materials and Geotechnical-Flexible Pavement, Bituminous Lab, Concrete & Physical Properties Lab, Soils Lab	In use	Hold

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
106	KFWD		Calculates overlay design by Asphalt Institute method using deflection under the load only. Correlation to Benkleman Beam method	Materials and Geotechnical-Deflection Lab	Uncertain status	Replace, apparently can be de-commissioned.
107	KTST		Operates the falling weight deflectometer	Materials and Geotechnical-Deflection Lab	In use	Hold
108	LDFAC	NCHRP freeware	Calculates live load distribution factor.	Bridge	In use	Hold
109	LEAF	CDOT?	Law enforcement Assistance Fund.	Safety and Traffic	In use	Hold
110	Leica total stations	Leica Geosystems		Survey, Right of Way	Uncertain status	Keep, need to assess impact of PICS and COGO migrations.
111	LPILE 1	Ensoft, Inc.	Laterally loaded pile analysis	Materials and Geotechnical-Soils Lab	Uncertain status	Hold
112	LRP (Long Range Plan)	Greenbrier and Russell	An Excel document which outlines potential projects and related funding for the next 20 year period. Provides the first step in the approved Statewide Transportation Improvement Program	Project Management	In use	Replace and consolidate with other LRP and STIP functionality as part of overall ERP package implementation.
113	Maintenance Management System (MMS) Early 70s	In-House Information Systems Group	Tracks all maintenance done on State highways. Allows managers to budget their labor hours for each maintenance activity. Tracks maintenance inventory.	Maintenance	In use	Keep
114	MAPS 2	In-house CDOT GIS	Read only application. Customized using ArcView. General location and planning.	GIS, Environmental	In use	Keep
115	Mathcad 2000	Mathsoft Engineering and Education Inc.	Math analysis/engineering spreadsheet. Used primarily to replace hand calculations and is capable of complex calculations for which there is no program available.	Bridge	In use	Keep
116	MathCad v. 6.0	Mathsoft Engineering and Education Inc.	Used in R value calculations	Materials and Geotechnical-Soils Lab	Not used	Replace, apparently can be de-commissioned.
117	Microsoft Visio	Microsoft	Flowchart/Organizational software which provides office business diagrammetic solution.	Safety and Traffic, General	In use	Keep
118	Microstation	Bentley		General	In use	Hold, pending final decision on CAD software.

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
119	Millennium Asphalt	CDOT Eng. Customer Support	Replacement for Superbase 99. Used for Asphalt testing by Regional labs and Headquarters for assurance testing	Materials and Geotechnical-Flexible Pavement	In use	Hold, re-assess as part of Materials Testing requirements definition and for consistency with CDOT technical architecture standards.
120	Mix Review			Materials and Geotechnical	In use	Hold
121	MLOS (Maintenance Levels of Service) Workbook	This is not an application. Contact Jeff Newbowl 303-273-1857.	Take information from MMS and includes it into an Excel spreadsheet	Maintenance	Uncertain status	Hold, re-assess for migration to Oracle based multi-user version.
122	Mr. SID Viewer (Version 2.0) 2002	Lizardtech Software	Aerial photo viewer and compression. The MrSID Geo Viewer is a stand-alone application designed to optimize the viewing of imagery that is in the MrSID imaging language.	Survey, Right of Way	In use	Hold
123	MSEW	Adama Engineering Inc.	Mechanically stabilized earth wall analysis	Materials and Geotechnical-Soils Lab and Geology Unit	Uncertain status	Hold
124	MX (Moss)	Infrasoft (Now Bentley)	3 dimensional surface modeling and civil design.	Bridge	Not used	Replace
125	MXROADS (12-15 years)	Infrasoft (Now acquired by Bentley)	Roadway Design Tool used for alignment design, super elevation and earthwork analysis and junction design.	Roadway Design	In use	Replace with InRoads statewide.
126	NCCulvert	North Carolina DOT	(Freeware)Designs and analyzes Box Culverts using WSD or LFD.	Bridge	In use	Hold
127	Negative Moment	CDOT Eng. Customer Support	Rating negative moment in prestress girder structures.	Bridge	Phasing out	Replace
128	NGS - Corpscon (Version 5.11.08) 1999	NGS	Coord conversions of Latitude, Longitude, NAD 27 Stateplane Coordinates, NAD 83 Stateplane coordinates, Colorado Coordinate system Zones - North, Central, South (National Geodetic Survey program)	Survey, Right of Way	Uncertain status	Hold, need to assess impact of migration from PICS and COGO (and potentially AutoCAD).
129	NGS - Geodetic Tool Kit	NGS	Various free NGS programs for downloading and use while working with NGS survey documentation and data (NGS program)	Survey, Right of Way	Uncertain status	Hold, need to assess impact of migration from potentially AutoCAD).
130	NGS - Geoid 99 (Version 99) 1999	NGS	Geoid modeling to obtain geoid height differences and GPS elevations (National Geodetic Survey program)	Survey, Right of Way	Uncertain status	Hold

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
131	NGS - LVL_DH	NGS	Computes the expected level difference in height between two North American Vertical Datum of 1988 benchmarks (NGS program)	Survey, Right of Way	Uncertain status	Hold, need to assess impact of migration from PICS and COGO (and potentially AutoCAD).
132	NGS - Vertcon (Version 2.0) 1994	NGS	Vertical conversions (NGS program)	Survey, Right of Way	Uncertain status	Hold, need to assess impact of migration from PICS and COGO (and potentially AutoCAD).
133	Noise	McTrans Center	Noise simulator program - provides noise levels. Used to determine if sound walls needed. Click for additional info	Environmental	In use	Hold
134	Online Cost Data Book			Construction	Uncertain status	Hold, should be re-assess to see if functionality required.
135	Passer II	McTrans Center	Traffic signalization software	Safety and Traffic	In use	Hold
136	Passer IV	McTrans Center	Traffic signalization software	Safety and Traffic	In use	Hold
137	Pavement Management System (RSAR)			Materials and Geotechnical-Flexible Pavement	In use	Hold
138	PCACol	PCA Structure Point	Analyzes reinforced concrete columns.	Bridge	In use	Hold
139	PCAPS		Railroad accident software	Safety and Traffic	In use	Hold
140	PCCAPS			Safety and Traffic	Uncertain status	Hold
141	PCEMS	Bridge	It is a excel spreadsheet for Work hour estimates.	Bridge	In use	Hold
142	Permits – Fastracks	Lochheed Martin	Prints and tracks permits for overweight and oversize trucks	Maintenance	In use	Keep
143	PETRA	Jamar Technologies, Inc.	Traffic counter software. PETRA, which stands for Professional Engineers Traffic Reporting and Analysis, is the software used to analyze data that has been collected with any of our hand-held data collectors (DB-100, DB-400, TDC-8)	Safety and Traffic	Uncertain status	Hold
144	Photo - Enroute Imaging 2000		Quick stitch photos	Survey, Right of Way	Not used	Replace with newer version of software.
145	Photo: Olympus Camedia (Version 1.1) 1999	Olympus, Inc.	Digital photos downloading, editing	Survey, Right of Way	Not used	Hold

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
146	PICS (Project Item Coding System)	CDOT Eng. Customer Support	Provides a standard way to collect and process survey information and standard method of coding features (e.g., light posts). Produces drawings that can feed AutoCAD	Roadway Design, Survey, Right of Way, Bridge, Hydraulics, General	In use	Replace with off the shelf package
147	PICS (Version 2.5)	CDOT Eng. Customer Support	Older version of PICS still in use(CDOT program)	Roadway Design, Survey, Right of Way, Bridge, Hydraulics, General	Phasing out	Replace with off the shelf package; Assess for potential to de-commission this version now.
148	Pilegroup	GeoStru Software S.A.S	Vertical and lateral pile capacity analysis	Materials and Geotechnical-Soils Lab and Geology Unit	In use	Keep
149	Plank	CDOT Eng. Customer Support	Rates HBP filled corrugated steel decks.	Bridge	In use	Hold
150	Plasticity		Calculates Liquid Limit and Plastic Limit	Materials and Geotechnical-Soils Lab	Not used	Replace, apparently can be de-commissioned.
151	Pontis	AASHTO	This system manages inspection data and produces information relating to legislative reporting criteria and bridge funding. It is a complete Bridge management system	Bridge	In use	Keep
152	PrOBE	In-house	Comprehensive Financial Statement of Status of Construction Projects from beginning to end. Accessed by different users depending on project phase.	Construction, Project Management	In use	Replace with integrated project management software package compatible with new ERP.
153	ProBE Security	CDOT		Construction	Not used	Replace with integrated project management software package compatible with new ERP.
154	ProDATES (1998)	CDOT In-house	Project Scheduling, Estimates, milestone tracking (CDOT program)	Survey, Right of Way, Safety and traffic, Project Management	In use	Replace with integrated project management software package compatible with new ERP.
155	Project tracking - File Maker Pro (Version 5.0v3) 2001		Project Tracking	Survey, Right of Way	In use	Hold, consider potential for providing this functionality through MS Project and/or new project management off the shelf software package.
156	Project tracking - ProTrack		Project tracking and contract information	Survey, Right of Way	Uncertain status	Hold, consider potential for providing this functionality through MS Project and/or new project management off the shelf software package.

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
157	Project tracking - SMRS 1998		Project codes, expenditures	Survey, Right of Way, Executive Management	Uncertain status	Replace with integrated project management software package compatible with new ERP.
158	ProMIS	In-house: Mariusz Dewicki and Yamal Rima	Provides Project Management through entire life cycle of project (inception through construction). Produces FHWA and Executive Reports.	Survey, Right of Way, Safety and traffic, Project Management, OFMB	In use	Replace with integrated project management software package compatible with new ERP.
159	PSG	CDOT Bridge Applications	Prestressed girder design and rating.	Bridge	Phasing out	Replace
160	QPM Voids		QA/QC Program	Materials and Geotechnical	In use	Keep
161	Quad maps - Maptech Terrain Pro		Locate, view and print USGS maps and various survey monument descriptions and information	Survey, Right of Way	In use	Hold
162	Quad maps - Topo Quads 3D (Version 1.3) 1999	Delorme	Title sheets, site maps, survey reconnaissance maps, planning, GPS control network maps, level network maps, Public Land Survey System maps	Survey, Right of Way	In use	Hold
163	Quad maps - Topo Scout (Version 2.03) 1998		Research, planning, survey reconnaissance maps, GPS control network maps, level network maps, Public Land Survey System maps	Survey, Right of Way	In use	Hold
164	Quad maps - Topo Terrain Navigator (Version 3.0) 1998		Research, planning, survey reconnaissance maps, GPS control network maps, level network maps, Public Land Survey System maps	Survey, Right of Way	In use	Hold
165	Quad maps: Topo Delorme (Version V1-TQ) 1999	Delorme	USGS 7.5-minute quadrangle maps with DeLorme's updated topographic and street-level data	Survey, Right of Way	Uncertain status	Hold
166	Quattro Pro	Corel Corporation	Spreadsheet program	Materials and Geotechnical	Uncertain status	Replace, should be de-supported when all applications migrated to Excel.
167	Ramp Metering			Safety and Traffic	In use	Hold
168	RangeTracker		No-passing zone software	Safety and Traffic	In use	Hold
169	Raster Design	AutoDesk	Brings scanned images, templates, aerials into raster format	Roadway Design, Bridge	In use	Hold
170	Rbase JUNCTIONS		This database contains the names of highway and feature intersections that make the Field Log readable.	Bridge	Phasing out	Hold

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
171	Rbase PROJDATA		This database is designed to track each project being designed in Staff Bridge. The data allows for tracking of progress of each design. The data can be used to determine work hour needs as well as design cost.	Bridge	Phasing out	Hold, potential to Consolidate with MS Project and/or new Project Management software package
172	Rbase PROJLIST	Bridge	A series of databases that keep track of all aspects of any project that is used in construction of a structure on the Highway System. It would also track Off system projects that are built with Fed Money.	Bridge	Phasing out	Hold, potential to Consolidate with MS Project and/or new Project Management software package
173	Rbase STRUNUM	Bridge	This database contains the record files for all assigned structure numbers. It also contains records on all walls built. The DB keeps track of all structures in design and construction.	Bridge	Phasing out	Hold, opportunity to tie into Corridor Web Application in the future
174	RBase v. 4.5		Documents concrete cylinder breaks, steel strengths, etc.	Materials and Geotechnical-Concrete & Physical Properties Lab	Not used	Replace, apparently can be de-commissioned.
175	RCPIER LA	Leap Software, Inc.	Analysis and design of bridge piers (LFD and LRFD).	Bridge	In use	Hold
176	Roadcalc	Eaglepoint	RoadCalc™ is a roadway design, earthwork computation and drafting tool	Roadway Design	In use	Replace and consolidate with InRoads as standard roadway design software statewide.
177	ROCKPACK 2	Rockware Inc.	Rock cut and slope stability analysis	Materials and Geotechnical-Geology	In use	Keep
178	RODEL	Rodel Corporation	Roundabout software	Safety and Traffic	In use	Hold
179	RSC		LaserGun interface program	Safety and Traffic	In use	Hold
180	RSS	US Department of Transportation	Soil slope analysis. Reinforced steep slope.	Materials and Geotechnical-Soils Lab and Geology Unit	In use	Keep
181	SAM	Bestech Systems	Designs and analyzes concrete, steel, and prestressed girders.	Bridge	Not used	Replace, apparently can be de-commissioned.

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
182	SAP 2000	Computers and Structures, Inc.	An integrated software for finite element analysis and design. It allows for model creation, modification, execution of analysis, design optimization, and results review from within a single interface.	Bridge	In use	Hold
183	Scanning - Epson Scan (Version 2.35E) 1998		Scanning of Right of Way plans	Survey, Right of Way	Uncertain status	Hold, pending enterprise document management strategy.
184	Scanning - Omni Page Pro (Version 11.0) 1998		Right of Way plans archival	Survey, Right of Way	In use	Hold, pending enterprise document management strategy.
185	Scanning- HP Scanner (Version LTX 1.1) 2001		Scan legal descriptions into Deed Plotter	Survey, Right of Way	Uncertain status	Hold
186	SHAXAM	CDOT	Used by project engineers to pay contractor estimates	Construction	In use	Hold, assess for duplication of functionality with SiteManager.
187	Sheet Manager (2001)		AutoCAD add-in program. Sheet cutter, ROW plans, Project Control Diagrams, Land Survey Control Diagrams	Survey, Right of Way	In use	Hold, need to re-assess based on AutoCAD decision.
188	SignCAD	http://www.signcad.com/	SignCAD is a stand alone Windows application helps in designing traffic signs.	Safety and Traffic	In use	Keep
189	SIMON	National Steel Bridge Alliance	Design of steel girders	Bridge	Phasing out	Hold
190	SIMTRAF/Synchro	TrafficWare Corporation	Traffic signal/simulation software	Safety and Traffic	In use	Hold
191	SiteManager	AASHTO	Project information/Construction Management	Safety and Traffic, Construction, contractors	In use	Keep; migrate to Citrix and then to Oracle platform. Consider addition of SitePad handheld functionality.
192	SiteManager Accessories	CDOT		Construction	In use	Replace with out of the box functionality available with SiteManager to extent possible.
193	Soil Density Program	CDOT Eng. Customer Support	Used for entry of information related to testing of materials (e.g., gradation reports; moisture density)	Materials and Geotechnical	In use	Keep
194	Sokkia total stations	Sokkia Corporation		Survey, Right of Way	In use	Keep
195	SPILE	FHWA	Static capacity for piles in cohesionless soils	Materials and Geotechnical-Soils Lab and Geology Unit	In use	Keep
196	SPSS	SPSS Inc.	Statistical software	Safety and Traffic	In use	Hold

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
197	STABL v. 5M	Purdue University	Stabilized slope analysis	Materials and Geotechnical-Geology	In use	Keep
198	Stamina		Noise simulator program with similar functionality to Noise but accepts inputs from microphones along the roadway.	Environmental	In use	Hold
199	Statistica	Statsoft Inc.	Statistical software	Safety and Traffic	In use	Hold
200	STED	Annapolis Engineering Software	Stability analysis for slope and embankments	Materials and Geotechnical-Soils Lab and Geology Unit	In use	Keep
201	STIP	In-house: Mariusz Dewicki and Yamal Rima	A sybase program that documents the project specific details that CDOT intends to fund during the upcoming 6-year period	Construction, Project Management, DTD, RTDs, OFMB, MPOs, TPRs, CDOT commission	In use	Replace with consolidated LRP and STIP application which is integrated with new ERP application.
202	Stripmap		AutoCAD stripmap interface program	Safety and Traffic	In use	Hold, need to re-assess based on AutoCAD decision.
203	Sumgraph	CDOT	Creates AutoCAD DXF file from Trns*port cost estimates.	Construction	In use	Hold, re-assess in view of final AutoCAD decision.
204	Superbase 99		Performs calculations and documents processes in asphalt mix design	Materials and Geotechnical-Flexible Pavement	In use	Hold for now, phase out as close out of project on old specifications allow, etc.
205	Survey data files - Image Mate (Version SDDR 31) 2001		Flashcard reader for downloading/uploading GPS files	Survey, Right of Way	In use	Keep
206	Survey data files - Leica Levelpak (Version 1.0) 1999		Leica survey instrument leveling downloading/uploading/ processing	Survey, Right of Way	In use	Keep
207	Survey data files - PFE (Version 1.01.000) 1999		Text editing applications	Survey, Right of Way	In use	Hold
208	Survey data files - Prolink (Version 1.01)		Sokkia data files downloading/ uploading	Survey, Right of Way	Uncertain status	Keep
209	Survey data files - Terminal (Version 5.0)		Survey data files downloading/ uploading	Survey, Right of Way	Uncertain status	Keep
210	Survey data files - Text Pad (Version 4.0.4.1		Editing TMOSS files	Survey, Right of Way	Uncertain status	Keep

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
211	TDV		Complex structural analysis.	Bridge	Not used	Replace, apparently can be de-commissioned.
212	Teams (Transportation State Equipment Acq. And Maint.)	In-House Information Systems Group	Tracks inventory of maintenance equipment (e.g., snow plows, guard rail, potholes)	Maintenance	In use	Hold, may need to be re-assessed for consistently with CDOT technical architecture, etc.
213	Timber	CDOT Eng. Customer Support	Timber bridge rating	Bridge	Phasing out	Replace
214	TR-55			Hydraulics	In use	Hold
215	TrafMan	Diamond Traffic Products	Traffic counter software	Safety and Traffic	In use	Hold
216	TRANSYT-7F	McTrans Center	Traffic signalization software	Safety and Traffic	In use	Hold
217	Trimble 4700 receiver (version 1.3)	Trimble		Survey, Right of Way	In use	Hold, potential opportunity to consolidate with newer release of this software
218	Trimble 5700 receiver (version 1.2)	Trimble		Survey, Right of Way	In use	Hold, potential opportunity to consolidate with newer release of this software
219	Trimble Geomatics Office (Version 1.6) 1999	Trimble	GPS processing, GPS control files, Static networks, Fast static networks, Real Time Kinematic files, GPS site calibrations, GPS elevations, Geoid modeling, exporting of GPS data into CDOT PICS (Trimble program)	Survey, Right of Way	In use	Hold, assess impact of PICS and COGO migration and final AutoCAD decision,
220	TrimMark 3 (version 1.1)	Trimble		Survey, Right of Way	In use	Keep
221	Trns*port Accessories	CDOT	Custom reports and tools.	Construction	In use	Replace to extent possible with out of box functionality; maintain minimal CDOT support custom interfaces and extensions.
222	Trns*port BAMS/DSS	AASHTO	A historical data repository to support statistical analysis and reporting	Construction	In use	Keep, migrate to Oracle
223	Trns*port CES	AASHTO	Construction Cost Estimation. Close integration with other Trns*port modules.	Construction	In use	Keep, migrate to Oracle
224	Trns*port Estimator	AASHTO	Standalone program that produces item-level cost estimates using either bid-based or cost-based techniques	Construction	In use	Keep
225	Trns*port Expedite	AASHTO	Allows bidders to receive proposal item schedules and submit and withdraw item bids in a secure, electronic environment.	Construction	In use	Keep

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
226	Trns*port Intranet	AASHTO	Provides Web-based access to reports created by the other modules.	Construction	In use	Keep
227	Trns*port LAS	AASHTO	Passes contract data to SiteManager and BAMS/DSS	Construction	In use	Keep
228	Trns*port PES	AASHTO	Proposal and Estimates System is an online system for managing project information during the pre-letting phase of a construction project	Construction	In use	Keep, migrate to Oracle
229	Trns*port SiteXchange	AASHTO	Provides a program for contractors to enter subcontract items and prices, and checks and loads subcontracts for processing by Site Manager	Construction	In use	Keep
230	TSC1 (version 7.71)	Trimble		Survey, Right of Way	In use	Keep
231	TSCe (version 10.01)	Trimble		Survey, Right of Way	In use	Keep
232	TSIS	McTrans Center		Safety and Traffic	In use	Hold
233	TSRST		Operates the Thermal Stress Restrained Specimen Test	Materials and Geotechnical-Euro Lab	In use	Keep
234	TurnFLO		Turning flow simulation software	Safety and Traffic	In use	Hold
235	UD-Inlet			Hydraulics	In use	Hold
236	UDSEWER			Hydraulics	In use	Hold
237	UDSWMM			Hydraulics	In use	Hold
238	UniPile 4.0	UniSoft Ltd	Pile and pile group design	Materials and Geotechnical-Soils Lab	In use	Replace, apparently can be de-commissioned.
239	Ventus Faber 2000		Operates the Hamburg rut tester	Materials and Geotechnical-Euro Lab	In use	Keep
240	Virtis/Opis	AASHTO	Designs and rates most commonly used bridge types. ASD, LFD & LRFD	Bridge	In use	Keep
241	Visual Permits		Windows access permitting program	Safety and Traffic	In use	Hold
242	Voids 03	CDOT Eng. Customer Support	QA/QC Program - Replaces QPM Voids	Materials and Geotechnical	In use	Keep
243	WEAP 86	Tellus Institute	Wave equation analysis of pile driving- the same as GRLWEAP	Materials and Geotechnical-Soils Lab and Geology Unit	Not used	Replace, apparently can be de-commissioned.
244	WinGather		Operates the Brookfield Viscometer	Materials and Geotechnical-Bituminous Lab	In use	Keep

No.	Application Name	Developer	Description	Primary User Orgs	Current Status	Recommendation
245	WinSlab		Concrete bridge deck rating.	Bridge	In use	Hold
246	XSTABL	Interactive Software Designs, Inc.	Stabilized slope analysis	Materials and Geotechnical-Geology	Uncertain status	Hold

PART 2
SCOPE OF WORK
TASK DESCRIPTIONS

THE COMPLETE SCOPE OF WORK FOR CONSULTANT SERVICES INCLUDES:

PART 1 - PROJECT SPECIFIC (Which is attached to the Contract for Consultant Services)

PART 2 - TASK DESCRIPTIONS

PART 2
PROJECT SPECIFIC
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SECTION 1
WORK TASK DESCRIPTIONS

The following includes work descriptions for all task normally accomplished during this phase of the work.

The tasks that are the responsibility of the Consultant are identified in Part 1 of "Scope of Work". The Consultant should review this entire section to identify applicable material. Contact the Colorado Department of Transportation Project Manager (CDOT/PM) if clarification is required. (See Section 2.01.)

A. Project Initiation and Continuing Requirements

1. *Initial Project Meeting*: A conference between the Consultant and the CDOT/PM will be held prior to any work being performed.

2. *Project Schedule*:
   a. Update Implementation Plan: Update implementation plan on a monthly basis and submit with the monthly billing.
   b. Update 10-year Long Range Plan: Update 10-year long range plan on a yearly basis.

3. *Project Management*: The Consultant will coordinate all the work tasks being accomplished by all parties to ensure project work completion stages are on schedule, in scope, and on budget. They will oversee the overall implementation ensuring all software packages utilized workflows, configuration, support, and training work seamlessly together.
   a. Oversee Implementation of the CEST Program: Oversee the implementation of the CEST program to ensure complete interoperability between workflows, software programs, configuration, support, and training.
   b. Workflow and Configuration Consistency: Advise CDOT how to keep workflows and configuration consistent from one specialty group and software product to another.
   c. Workflow and Configuration Implementation: Advise CDOT when and how to implement various aspects of specialty groups workflows.
   d. Organize and Sequence Implementation: Advise CDOT on how to best organize and sequence the implementation of the CEST program.
   e. Organize and maintain communications between project team members. Develop e-mail links so all project team members are included in development communications.
   f. Schedule and coordinate training courses (dates, times, locations, equipment)
   g. Schedule and coordinate web tutorials
   h. Schedule and coordinate support, on-site and telephone
   i. Schedule and coordinate meetings.
   j. Coordinate with specialty teams
   k. Manage Consultant team
   l. Coordinate reports, workflows, configuration, training documents, and web tutorials
   m. Manage quality control
   n. Attend Meetings
   o. Coordinate on-site support visits around the State to provide the best efficiency of the program.

4. *Evaluation of Software and Hardware*: Consultant will assist and make recommendations when new software becomes available.
   a. Throughout the implementation process new versions of software will be available. Assist and make recommendations in evaluating software upgrades and the impacts to the configuration, workflows and CDOT overall computer software transition.

B. Project Development

1. *Communication*: Establish and maintain a computerized list of all appropriate receptors for the communication process. The contacts will be compiled from the general 'contact list' below as supplemented by the Project Review Team and the attendees.

   The list will be used for notices regarding mailings, or other communications as appropriate.

   The information on the list shall include as a minimum:
   Name
   Firm (if applicable)
   Mailing/email address
   Phone/Fax numbers

   a. Contact List:
      Public Agencies
      Elected/Appointed Officials
      Consultants
      Specialty Groups

   b. General Meetings: The types and number of meetings shall be flexible and determined by an interactive process as approved by the CDOT/PM.
      (1) Weekly Group Meetings.
         a. Meet with CDOT project team or others directly affected by the project work to identify likely impacts and discuss possible mitigation of resolutions. The consultant will lead the meetings or assist CDOT in leading the meetings
         b. Progress Meetings: The CDOT and Consultant Project Manager will meet periodically as required (typically at two-week intervals). Progress Meetings will be used to coordinate and track the work effort and resolve problems. The meetings will review the following:
            (1) Activities required to be completed since the last meeting.
            (2) Problems encountered and effectiveness of previous meeting.
            (3) Late activities.
            (4) Activities required to be completed by the next meeting.
            (5) Solutions proposed for unresolved and anticipated.
            (6) Information or items required from other agencies.
      (2) Monthly Meetings. Meet with CDOT Standards & configuration team or others directly affected by the project work to identify likely impacts and discuss possible mitigation of resolutions. The format of these meetings will be dictated by the project and goals for the meetings. The consultant will lead the meetings or assist CDOT in leading the meetings
      (3) Specialty Group Meetings. Meet with CDOT Specialty groups or others directly affected by the project work to identify configuration requirements, workflows, and impacts and discuss possible mitigation of resolutions. The consultant will lead the meetings or assist CDOT in leading the meetings. The format of these meetings will be dictated by the project and goals for the meetings. At each specialty meeting the consultant is to have a subject matter expert available to assist with the meeting, recommendations and discussions.

   c. Communication Aids
      (1) Graphics Support. Provide the graphics for presentations. This may include 35mm slides, overhead projector slides, maps and plan views of conceptual design, and other displays for visual presentations at meetings.

(2) Web-site. Assist with their internal and potentially external web-site(s).
   a. Help develop "Tips-n-Tricks" for MicroStation, InRoads, Survey, CDOT Workflows, and Specialty groups.
   b. Development and maintain training web page.

(3) Local Office. Obtain and maintain an office within the Denver metro to conduct and participate in meetings and coordinate with CDOT staff.

2. *Planning*
   a. Develop 3-year implementation plan. Implementation plan shall build on CDOT's current software, configuration, workflows and training programs to create a complete electronic project delivery system from planning through construction. Plan is to include at a minimum:
      i. Timelines for the development of the configuration, workflows and training for each specialty group.
      ii. Sequencing of tasks between specialty groups.
      iii. Map the most efficient and cost effective way to develop and implement a complete electronic project delivery system from planning through construction.
      iv. Include end of fiscal year key milestones and others that are developed by specialty groups or other CDOT teams and management.
      v. Implementation of all the software packages CDOT has identified. More may be added to this list depending on recommendations by CDOT or the Consultant.
      vi. Implementation of software upgrades and the impact they have to the development of the configuration, workflows, and training.
      vii. The schedule will be cost loaded.
   b. Develop 10-year long range plan. After the configuration has been completed CDOT plans to bring it back in house to maintain. Plan is to include at a minimum:
      i. 3-year implementation plan.
      ii. Timelines for updating of the configuration, workflows and training for each specialty group.
      iii. Sequencing of tasks between specialty groups.
      iv. Map the most efficient and cost effective way to maintain a complete electronic project delivery system from planning through construction.
      v. Include end of fiscal year key milestones and others that are developed by specialty groups or other CDOT teams and management.
      vi. Implementation of additional software packages CDOT has identified. More may be added to this list depending on recommendations by CDOT or the Consultant.
      vii. Implementation of software upgrades and the impact they have to the development of the configuration, workflows, and training.
      viii. The schedule will be cost loaded.
      ix. Estimated on-going costs to CDOT due to implementation of software upgrades and the impact they have to the development of the configuration, workflows, and training.
      x. Resources and qualification required for CDOT to take over the configuration and maintain the configuration, workflows and training after the implementation plan has been completed.

3. *Configuration:* Continue building on CDOT's current configuration to create a complete electronic project delivery system from planning through construction.
   a. Develop CDOT's Configuration: Assist in continuing to develop CDOT's configuration as defined by the standards and configuration committee, specialty groups, and CDOT's Design/CAD manager.
      i. All configuration must be developed free of any copyright or other legal constraints, thereby enabling CDOT to utilize the material when and how it deems appropriate.

b. Integrate Specialty Groups Needs and Configuration: CDOT is a multi-disciplinary organization and the following specialty groups: planning, survey/ROW, roadway design, hydraulics, traffic/ITS, structures, environmental, utilities, GIS, materials/geotechnical, construction, maintenance, IT, M&S Standards and various CDOT standards groups needs and configuration are to be integrated.
c. Integrate Software Programs: CDOT has a wide variety of software programs and configuration that are to be integrated and subject matter experts in one or all of the following may be required. Following is a list of software products that CDOT is using or interested in heading towards implementing. More may be added to this list depending on recommendations by CDOT or the Consultant.
    (1) Bentley InRoads Survey
    (2) Bentley MicroStation
    (3) Bentley InRoads
    (4) Bentley Redline
    (5) Bentley Bridge (or similar package)
    (6) Bentley Hydraulics (or similar package)
    (7) Bentley Quantity Manager
    (8) Bentley Standards Checker
    (9) Bentley ProjectWise
    (10) Bentley iPlot
    (11) AASHTO Transport
    (12) AASHTO SiteManager
    (13) SignCAD
    (14) AutoTrak
    (15) Enterprise Resource Planning (ERP)
d. Document all configuration decisions.
e. Code and quality check the configuration.
f. Support the configuration and make fixes.
g. Update configuration as a result of CDOT decisions, changes in software, addition of software, and software upgrades.
h. Coordinate and Work with CDOT's IT department when pushing configuration to CDOT employees or consultants.

4. *Workflows*: Assist in helping CDOT develop workflows.
    a. Provide alternatives, options and workflows so specialty teams can decide on how to best develop the configuration for their needs.
    b. Assist in developing specialty group workflows. Specialty groups include: planning, survey/ROW, roadway design, hydraulics, traffic/ITS, structures, environmental, utilities, GIS, materials/geotechnical, construction, maintenance, IT, M&S Standards and various CDOT standards groups needs and configuration are to be integrated.
    c. Integrate Specialty Groups Needs and Workflows: CDOT is a multi-disciplinary organization and the following specialty groups: planning, survey/ROW, roadway design, hydraulics, traffic/ITS, structures, environmental, utilities, GIS, materials/geotechnical, construction, maintenance, IT, M&S Standards and various CDOT standards groups needs and configuration are to be integrated.
    d. Document all workflows to be included in manuals and provide to CDOT to post on their web-site.
        i. All workflows must be developed free of any copyright or other legal constraints, thereby enabling CDOT to utilize the material when and how it deems appropriate.
    e. Update workflows due to CDOT decisions, changes in software, addition of software, and software upgrades.

f. Integrate Software Programs: CDOT has a wide variety of software programs and workflows that are to be integrated and subject matter experts in one or all of the following may be required. Following is a list of software products that CDOT is using or interested in heading towards implementing. More may be added to this list depending on recommendations by CDOT or the Consultant.
    (1) Bentley InRoads Survey
    (2) Bentley MicroStation
    (16) Bentley InRoads
    (17) Bentley Redline
    (18) Bentley Bridge (or similar package)
    (19) Bentley Hydraulics (or similar package)
    (20) Bentley Quantity Manager
    (21) Bentley Standards Checker
    (22) Bentley ProjectWise
    (23) Bentley iPlot
    (24) AASHTO Transport
    (25) AASHTO SiteManager
    (26) SignCAD
    (27) AutoTrak
    (28) SAP Enterprise Resource Planning (ERP)
    (29) ESRI GIS software

5. *Custom Extensions*: Develop custom extensions.
    a. Design and develop custom extensions.
    b. Implementation of Custom Extensions: Advise when and how to implement custom extensions for specialty groups workflows.
    c. Develop Functional Specification: Assist CDOT staff with the development of a functional specification.
    d. Prepare a technical design specification for the custom extension.
    e. Review the technical design specification with CDOT to obtain approval.
    f. Code and quality control check custom extensions.
    g. Support Implementation of Custom Extension: Support the custom extension during Integration Testing, making fixes as required.

6. *MicroStation/InRoads Subject Matter Expert*: Provide MicroStation/InRoads subject expert to assist CDOT Design/CAD manager. The person will be provided an office, computer, and telephone at CDOT headquarters building. Specific tasks include:
    a. Quality Assurance and Testing: Perform quality assurance and testing of the CDOT configuration developed by selected consultant.
    b. Test Configuration: Test new versions of the configuration prior to release.
    c. Support Configuration: Support the CEST Project team in configuration improvements and enhancements.
    d. Identify Problems: Help identify problems and issues with the production configuration and proposed enhancements.
    e. Assist with Specialized Software Requirements: Assist the CEST team with the definition and documentation of the specialized engineering software requirements of the CDOT specialty groups (Bridge, Hydraulics, etc.) by facilitating workshops and conducting interviews, inventorying requirements and documenting potential solutions for these requirements.
    f. Assist with Product Selection: Assist the CEST team with product selection and configuration for the CDOT specialty groups.

g. Provide Training Recommendations: Review, analyze and make recommendations on configuration and training.
h. Assist with Setting Preferences and Standards: Assist the CDOT CEST Standards and Configuration team in setting preferences and workflows.
i. Provide support to CDOT users within Denver metropolitan area (or outside Denver at the request of the Design/CAD Manager) as needed. Provide overall support to the CEST team and subcommittees of the CEST team as directed by the Design/CAD Manager.
j. Prepare Plan Sheets: Prepare standard CDOT plan sheets in MicroStation that will be used in the production configuration.
k. Prepare and conduct demonstrations of the production configuration for presentations.
l. Identify Enhancements: Conduct interviews with other consultants as appropriate to help identify potential enhancements to the configuration.
m. Prepare Web Content about the CEST project to be posted on CDOT Web sites.
n. Documentation of Meetings and Problem Issues: Prepare meeting minutes and documentation write-ups on known issues related to activities performed.
o. Coordinate and work with IT and other CDOT departments as related to workflows, configuration, training, and software implementation.
p. Update and assist with CAD website.

7. *Transportation Subject Matter Expert(s)*: Provide transportation professional expert(s) to assist CDOT Design/CAD manager. If requested by CDOT the person(s) will be provided an office, computer, and telephone at CDOT headquarters building. Specific tasks include:
    a. Provide CDOT with professional specialty expertise in the following areas: freeways, highways, local and rural collectors for municipal and state projects. Must be knowledgeable of CDOT configuration, workflows, plan development, and processes. Experience must includes, but is not limited to: scoping, surveying, planning (Environmental Assessments), designing: roadway, drainage traffic, structural, material, geotechnical, utilities, Right-of-Way, construction, plan development, specifications, and estimates (PS&E).
    b. Identify Enhancements: Conduct interviews with CDOT employees and CDOT consultants as appropriate to help identify workflows.
    c. Assist with Developing and Setting Standards: Assist CDOT in developing and setting standards.
    d. Provided extensive coordination between specialty groups for the following: scoping, surveying, planning (Environmental Assessments), designing: roadway, drainage, traffic/ITS, structural, material/geotechnical, utilities, GIS, survey/ROW, construction, plan development, specifications, and estimates (PS&E). Coordination with internal and external team members including consultants, cities, counties, railroads, special interest groups, and concerned citizens.
    e. Provide Training Recommendations: Review, analyze and make recommendations regarding configuration and training.
    f. Provide support to CDOT employees within Denver metropolitan area (or outside Denver at the request of the Design/CAD Manager) as needed. Provide overall support to the CDOT as directed by the Design/CAD Manager.

g. Prepare and conduct demonstrations regarding scoping, survey/ROW, planning (Environmental Assessments), designing: roadway, drainage traffic/ITS, construction phasing, GIS, plans, develop plan sheets, specifications, and estimates (PS&E).

h. Assist CDOT with training for scoping, survey/ROW, planning (Environmental Assessments), designing: roadway, drainage, traffic/ITS, structural, material/geotechnical, utilities, GIS, and construction, plan development, specifications, and estimates (PS&E).

i. Assist CDOT personnel in specialty areas with: survey/ROW, planning (Environmental Assessments), designing: roadway, drainage, traffic/ITS, structural, material/geotechnical, utilities, GIS, and construction, plan development, specifications, and estimates (PS&E).

8. *Support*: Provide statewide support.

a. Provide Professional Engineers and Professional Land Surveyors as well as other subject matter experts to assist in on-site support to CDOT's residential engineering and headquarters offices. Support visits vary in structure and will depend on the users needs. They can range from several hours to a several day meeting. They will also very in numbers of persons.
b. Provide telephone or other remote support to CDOT users. An inquiry from a CDOT staff member should receive at least the initial response within one hour during CDOT business hours, 7 a.m. to 5 p.m. Monday through Friday.
c. Evaluate user problems and make recommendations on how to best resolve them (telephone, on-site support, training class, web-based training module).
d. Provide telephone support to CDOT Consultants that are currently under contract by CDOT.
e. Develop Plan for Frequently Asked Questions: With information gathered from the various forms of support the consultant shall provide CDOT with frequently asked questions and develop a plan on how to best resolve these issues by developing workflows, incorporate into training classes or web modules, etc.
f. Provide Software Support: Provide support in all the software packages CDOT has identified. More may be added to this list depending on recommendations by CDOT or the Consultant.
    (1) Bentley InRoads Survey
    (2) Bentley MicroStation
    (3) Bentley InRoads
    (4) Bentley Redline
    (5) Bentley Bridge (or similar package)
    (6) Bentley Hydraulics (or similar package)
    (7) Bentley Quantity Manager
    (8) Bentley Standards Checker
    (9) Bentley ProjectWise
    (10) Bentley iPlot
g. Support CDOT Staff: Provide CDOT staff support in developing and programming the configuration.
h. Keep and maintain activity diaries related to support.

9. *Develop Customized Training and Manuals*: Develop Customized Training plans, curriculum and manuals.

a. Prepare detailed training plan(s) for customized course(s) and manual(s).
b. Prepare Customized Outlines: Provide Professional Engineers and Professional Land Surveyors as well as other subject matter experts to work with specialty groups to develop and understanding of their needs and prepare detailed customized course outlines and manuals. Consultant will need to coordinate development of customized courses and manuals with CDOT's training committee.

c. Develop Custom Materials: All manuals and courseware must be developed free of any copyright or other legal constraints, thereby enabling CDOT to utilize the material when and how it deems appropriate
    a. Design and develop custom courses, manuals and configure training machines.
    b. Develop Custom Manuals: Design and develop custom manuals.

10. *Provide Customized Training*: Provide Statewide customized training

a. Develop Customized Training Manuals: Work with specialty groups and training committee to develop and implement customized manuals specifically for CDOT workflows.
b. Provide State wide training to CDOT's residential engineering and headquarters offices. Training classes can range from several hours to a several days.
c. Provide Classroom: Provide a suitable classroom environment appropriate for 12 students and networked workstations capable of running all necessary software at an adequate level of performance for a training environment.
    i. CDOT will provide the Consultant with sufficient software licenses for each Bentley product and InRoads/MicroStation production configuration for installation by the Consultant onto the Consultant supplied hardware.
    ii. All training facilities must be ADA assessable.
    iii. Class shall be limited to a maximum of twelve students a minimum of eight will be CDOT employees. If the class does not fill and extra seats are available CDOT may offer any remaining slots to Consultant engineering firms or other State and Federal agencies at a reasonable fee that will go to CDOT. If there are less than eight CDOT people signed up for the class the class will be cancelled, move to another location, or reclassified to another subject.
    iv. The computer training environment must meet the following minimum requirements:
        - Workstation:
            - Intel Pentium 4 CPU
            - 1 GB RAM
            - 80 GB disk space
            - Graphics card capable of supporting dual monitors
            - Two 17 inch monitors, minimum resolution 1024x768 dpi
            - Ethernet network interface card
            - Windows XP Professional, Service pack 1a
        - License Server:
            - Windows Server 2003
            - Ethernet network interface card

d. Update and Maintain Registration System: Update, maintain, and enhance CDOT's existing training course registration system. Consultant must provide CDOT with a list of scheduled/registered and actual attendees for each course upon request.
e. Provide Course Evaluation Survey: Provide a one-page course evaluation survey at the end of each course and provide a summary of the results to CDOT within five days of course completion. Consultant shall also provide CDOT a summary of survey results for all courses and course types with the monthly billing.
f. Provide Instructor: Provide one instructor knowledgeable of the material per class.

11. *Designing and Developing Self-Paced Web Tutorials:* Develop web-based, self paced tutorials.

a. Develop, Test, and Implement Self Paced Web Tutorials: Work with training committee and other CDOT staff to develop, test and implement self paced web tutorials.

i. The courseware should generally cover the same scope and depth as the original classroom course, with extensive exercises for participants.
ii. Develop tutorials from previously developed customized training courses.
iii. Instead of a classroom environment and manuals some specialty groups may only require self paced web based tutorials. Consultant shall work with specialty groups and training committee to develop customized self-paced web tutorials for their needs.
iv. Courseware shall be developed following industry best practices and use tools enabling CDOT staff (or third party) to efficiently update course material as changes are made to the CDOT configuration and/or upgrades are made to the Bentley software suite. Further, the RFP generally required the selected consultant to provide courseware developed using tools that would enable CDOT staff to make future changes. The Consultant will deliver self-paced training courseware as described based on HTML web pages, with the delivered courseware being capable of working within CDOT's Load Balanced environment and compatible with the following specifications:
    Microsoft Server 2003
    Microsoft Internet Information Services (IIS) 6.0
    Microsoft SQL Server
    Macromedia DreamWeaver
    IBM WebSphere
    J2EE Application Server
iv. All courseware must be developed free of any copyright or other legal constraints, thereby enabling CDOT to utilize the material when and how it deems appropriate.

b. Work with CDOT's IT department when pushing self paced web tutorials to CDOT employees or consultants.
c. Provide Course Evaluation Survey: Create an on-line evaluation survey for each course. The survey is to be administered electronically at the end of each courseware component and the results provided to CDOT and electronically stored in a manner allowing for retrieval of results upon request.
d. Update tutorials as a result of CDOT decisions, changes in software, addition of software, and software upgrades.

12. *CAD Drafting:* Drafting with MicroStation:

a. Draw to scale using CDOT configuration details in MicroStation.
    (1) All drawings must be developed free of any copyright or other legal constraints, thereby enabling CDOT to utilize the material when and how it deems appropriate.
b. Update drawings due to CDOT decisions, changes in software, addition of software, and software upgrades.

SECTION 2
SUBMITTALS

A. Reports, Schedules, Studies, Workflows, Manuals, Specifications, Outlines, Surveys, Training Documents, Diaries

All required reports, schedules, studies, workflows, manuals, specifications, outlines, surveys, and training documents shall be submitted in Microsoft Office and Adobe PDF document format and will be submitted for review to the CDOT/PM. Final submittals shall incorporate the corrections and/or revisions resulting from the review. Many of these documents are submitted on a daily, weekly, or monthly basis and will be submitted on mutually agreed upon schedule.

B. Meeting Minutes

The minutes will be completed and will be provided to the CDOT/PM within five (5) working days after the meeting. When a definable task is discussed during a meeting, the minutes will identify the "Action Item", the agency responsible for accomplishing it, and the proposed completion date. Final submittals shall incorporate the corrections and/or revisions resulting from the review.

C. Agendas of Meetings

The agendas for meetings will be completed and will be provided to the CDOT/PM five (5) working days prior to the meeting. Final submittals shall incorporate the corrections and/or revisions resulting from the review.

D. Electronic Data Submittals

The consultant MUST use the latest CDOT MicroStation/InRoads configuration, directory structure, and file naming conventions in the preparation of all electronic project data.

All consultant drawings shall be prepared using the latest CDOT developed prototype plan drawings and corresponding/supporting drawing cell libraries.

The consultant shall be required to obtain approval from the CDOT Project Manager to deviate from the established CDOT standard configuration in the preparation of the proposed design model(s) and project plan drawings. All modeling and plan preparation deviations approved by the CDOT Project Manager shall be fully documented and all electronic files supporting such deviations shall be submitted as well.

Any project related data in all forms generated by the consultant MUST be able to be reproduced **without error** on CDOT computer equipment, with no further adjustments on the part of CDOT. Project data containing errors shall be repaired by the consultant at no cost to the project.

All material must be submitted to the CDOT Project Manager, from the consultant Project Manager. Acceptance of submitted material is at the sole discretion and responsibility of the CDOT Project Manager.

1. Computer drawings

MicroStation will be the required drafting package. All plan drawings shall be submitted as a *.dgn electronic drawing prepared using MicroStation/InRoads format. "Master" drawings of the entire ROW plan, Design model(s), etc., from beginning to end shall be included as part of the electronic and

hard copy submittals. All master drawings shall be created in "World Coordinates" (to be the same coordinate system used in the survey).

Electronic Plot Files of the plan set in Adobe .PDF file format shall also be provided. The PDF files shall be compatible with Adobe 7.0(PDF 1.4). All material must be submitted to the CDOT Project Manager. All Electronic drawing files and plot files shall be submitted on CD disk, uncompressed as directed by CDOT Project Manager.

It is suggested that the CDOT Project Manager be contacted prior to creation of electronic media to verify the current submission requirements or to discuss any questions concerning the ability to satisfy the current submission requirements.

CDOT Computer/Software Information. The primary hardware used by CDOT is Intel based PC's with Window XP (Service Pack 1). The types of software are:

Earthwork:	InRoads (PC based)
Drafting:	MicroStation (PC based)
Survey:	InRoads Survey
Geometry:	Inroads COGO
Bridge:	Staff Bridge software shall be used in either design or design check
Estimating:	TRNS*PORT (Bid Analysis and Management Systems), an AASHTO-sponsored software

2. Computer Data Compatibility

   a. Survey information: All terrain and topographic surveys shall be completed utilizing InRoads Survey methodology. The survey data shall be submitted in an edited raw format, free of any and all coding errors.

3. Electronic submittals
   CDOT accepts submittals on 51/4 inch CD ROM, and the CDOT FTP site at the discretion of the CDOT Project Manager.

   Submittals to the CDOT FTP site, must follow the directory structure format approved by the CDOT Project Manager. CDOT must receive a CD ROM one working day after submission to the CDOT FTP site. The data and directory structure must require no adjustment before insertion into the CDOT production system.

   5 ¼"CD ROM Disks-should be formatted so they can be read from any PC. CD submitted for approval that is found to be defective shall be immediately rejected by the CDOT Project manager. The consultant will then be required to resubmit the offending CD(s) at no further cost to the project.

4. Required documentation: CDOT requires that each unit of the CD media submitted be identified with adhesive labels affixed to the CD case containing the following MINIMUM information as applicable of the CD being submitted:

   ☒ Computer make, model, and operating system
   ☒ CDOT Project Number and CDOT project Manager name
   ☒ Date created
   ☒ Contact Person and telephone number

A letter MUST accompany the electronic media which contains the same information as required on the media AND:

Either contains a description of the operating system commands used to create the electronic media, or an attached computer generated listing of the actual process, which created the electronic media (preferred).

- Configuration Releases
- Custom Extensions
- Self-Paced Tutorials
- Custom Extensions

5. Workspace and Computer Based Training (CBT) Configuration

To manage changes and avoid duplications, the consultant must develop a version control process that is approved by the CDOT Project Manager

WinZip 9.0 or the equivalent shall be use to submit compressed data on CD or the CDOT FTP site.

All deliverable must be certified virus free by the consultant Project Manager.

A "Readme" file must be included with each update containing:

- Summary of the primary benefits of Workspace upgrade.
- New functionality added.
- Changes from previous versions.